

REMARKS

The Applicants request reconsideration of the rejection.

Claims 12-15 remain pending.

Claims 12-14 and 18 stand rejected under 35 U.S.C. §102(b) as being anticipated by Mallary et al., U.S. Patent No. 5,805,392 (Mallary) in view of Partee, U.S. Patent No. 6,081,408 (Partee) and Takeura et al., U.S. Patent No. 4,807,073 (Takeura). The Applicants traverse as follows.

Claim 12 is a method claim directed to a method for manufacturing a single pole type magnetic write head. The method includes steps of forming a groove on an inorganic insulating layer, forming a magnetic layer serving as the main pole of the write head in the groove, and forming a recess in the magnetic layer on a trailing side of an air bearing surface thereof. By way of non-limiting example, Fig. 9(A) – Fig. 9(G) show steps of etching an inorganic insulating layer 28, thereby forming a groove therein (Fig. 9(B)), forming a magnetic layer in the groove (Fig. 9(E)), and forming a hollow of the magnetic layer (Fig. 9(G)).

Against these steps of the claimed invention, the Office Action asserts Mallary as disclosing a step of forming a not-labeled groove on an inorganic insulating layer 15 (citing Fig. 4), forming a magnetic layer 16 serving as a magnetic main pole of a write head in the groove, and forming a recess in the magnetic layer 16 on a trailing side of an air bearing surface, wherein the recess is formed by ion milling (480, citing col. 7, lines 32-50).

At the outset, the Applicants note that Mallary does not teach the step of forming a groove on an inorganic insulating layer, as alleged in the Office Action. Alumina layer 15 is coated or sheet-deposited onto magnetic layer 14 and hard

baked resist 400, as described in col. 7, lines 26-31. As such, alumina layer 15 takes the shape of the surfaces on which it is coated or sheet-deposited, and there is no teaching that a groove is formed in the layer 15.

Mallory also does not teach a step of forming the magnetic layer 16 as the main pole of the write head, in the groove. Rather, the entire structure shown in Fig. 4 constitutes either the pole 12 or pole 11 of the read head shown in Fig. 1, the pole 112 or the pole 111 of the inductive read or write head of Fig. 2, or the shared pole 270 of the combined read head and inductive write head of Fig. 3. Magnetic layer 16 itself does not serve as the main pole of the write head.

Further, Mallory does not teach the step of forming a recess in the magnetic layer on a trailing side of an air bearing surface thereof. Rather, the ion milling cited in the Office Action “operates to remove the exposed portions of second plating seed layer 415, and to trim and perfect the Y-Z planar shape of the top NiFe layer 16.” That is, the ion milling trims the edges of magnetic layer 16 and seed layer 15 outside the magnetic layer 16, so as to achieve the profile shown in Fig. 4. Mallory does not teach that the ion milling forms a recess in layer 16.

Nevertheless, claim 12 has been amended to include subject matter describing the outline of the main pole as seen from the air bearing surface side. This view, similar to that of Fig. 4 of Mallory, makes more clear the patentable distinction between the invention defined in claim 12 and the structure shown in Mallory. As now claimed, the outline of the main pole as seen from the air bearing surface side has a first line segment opposed to the auxiliary pole and a second line segment opposed to the first line segment, wherein the second line segment has one or more points closer to the first line segment than opposite ends of the second line

segment. This structure is neither disclosed nor suggested by Mallary, even taken in combination with Partee and Takeura.

Claim 15 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Mallary in view of Cohen et al., U.S. Patent No. 5,326,429 (Cohen). Cohen is cited as teaching to pattern an inorganic insulating layer of alumina by using a resist pattern to etch a groove in the insulating layer. However, Cohen does not teach that the groove is formed in an inorganic insulating layer on which a magnetic layer serving as the main pole of the write head is formed. Accordingly, even in combination with Mallary, Cohen does not render obvious the invention claimed in claim 15.

In view of the foregoing amendments and remarks, the Applicants request reconsideration of the rejection and allowance of the claims.

To the extent necessary, the Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of Mattingly, Stanger, Malur & Brundidge, P.C., Deposit Account No. 50-1417 (referencing attorney docket no. NIT-320-02).

Respectfully submitted,

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